

## **Teaching Thinking Dispositions: From Transmission to Enculturation**

**Shari Tishman, Eileen Jay, and D. N. Perkins**

**Harvard University**

August 1, 1992

This paper was written as part of a project funded by the John D. and Catherine T. MacArthur Foundation. The authors thank the foundation for its help, acknowledging that the ideas expressed here do not necessarily reflect the position or policy of supporting agencies.

Correspondence may be sent to: Shari Tishman, Harvard Graduate School of Education, 219 Longfellow Hall, Appian Way, Cambridge, MA 02138

In Press: Theory Into Practice

# **Teaching Thinking Dispositions: From Transmission to Enculturation**

## **Introduction**

Can you play the piano? *Do* you play the piano? These are different questions, and your answer may well be "yes" to the first and "no" to the second. The first question asks about ability: If you sat down in front of a piano, could you play a tune? The second tacitly asks much more – it goes beyond ability and asks about inclination: Are you *disposed* to play the piano? Do you like to play? Do you play regularly?

Playing the piano is like higher order thinking in at least this respect: in both cases, ability alone is not enough to ensure ongoing performance. Just as having the ability to play the piano does not guarantee the disposition to do so, having certain thinking skills does not mean that one will use them, and in fact, research shows that students often fail to use the thinking skills they are taught. For example, research on reasoning and argument shows that, when explicitly asked, people can easily give plenty of reasons opposite their favored side of the case – that is, they have the ability. But typically they fail to do so – that is, they lack the disposition (Perkins, Farady and Bushey, 1991).

The teaching of thinking is acknowledged by many as an important goal of education, and underlying this view is a conception of what constitutes good thinking. By and large, this is a skills-centered conception: It says that good thinking consists of a cluster of well-developed creative and critical thinking skills. Few would argue against the goal of teaching students to be good thinkers, but is teaching thinking skills enough?

While acknowledging that skills are important, this paper goes beyond a skills-centered view and proposes a dispositional approach to the teaching of thinking. We join the voices of others in stressing the importance of dispositions, (see, for example, Baron, 1987, and Ennis, 1987), and make the strong claim that being a good thinker *means* having the right thinking dispositions. On this view, teaching thinking means more than inculcating particular thinking skills, it means teaching students to be disposed to think creatively and critically in appropriate contexts.

This paper is divided into two parts. Part One offers a brief description of a dispositional conception of thinking: it lays out a view of what good thinking dispositions look like and what they are made of. Part Two compares different models of teaching and examines the extent to which they provide adequate guidelines for teaching thinking dispositions.

## **Part One: A Dispositional Conception of Good Thinking**

What characterizes a good thinker? To be sure, a good thinker possesses certain abilities: cognitive capabilities, as well as thinking strategies and skills. Yet what sets good thinkers apart is not simply superior cognitive ability or particular skills; rather, it is their abiding tendencies to explore, to inquiry, to seek clarity, to take intellectual risks, to think critically and imaginatively. These tendencies can be called "thinking dispositions."

Thinking dispositions are ongoing tendencies that guide intellectual behavior. They can be good or bad – productive or counter-productive. For example, you might have the disposition to make careful plans in appropriate situations. That's good. But sometimes you might have the disposition to plunge ahead blindly, without taking the time to plan or think ahead. That's bad.

Good thinking dispositions – the ones that normally describe productive intellectual behavior – can be characterized as consisting of seven broad but key intellectual tendencies (Perkins, Jay and Tishman, 1992). The following list describes these seven dispositions. Ideally, good thinking includes all of these dispositions exhibited appropriately at different times depending on the thinking situation. While other dispositions may contribute to good thinking, we believe these seven to be central; efforts to teach thinking ought to cultivate them.

*1. The disposition to be broad and adventurous*

The tendency to be open-minded, to explore alternative views; an alertness to narrow thinking; the ability to generate multiple options.

*2. The disposition toward sustained intellectual curiosity*

The tendency to wonder, probe, find problems, a zest for inquiry; an alertness for anomalies; the ability to observe closely and formulate questions.

*3. The disposition to clarify and seek understanding*

A desire to understand clearly, to seek connections and explanations; an alertness to unclarity and need for focus; an ability to build conceptualizations.

*4. The disposition to be planful and strategic*

The drive to set goals, to make and execute plans, to envision outcomes; alertness to lack of direction; the ability to formulate goals and plans.

*5. The disposition to be intellectually careful*

The urge for precision, organization, thoroughness; an alertness to possible error or inaccuracy; the ability to process information precisely.

*6. The disposition to seek and evaluate reasons*

The tendency to question the given, to demand justification; an alertness to the need for evidence; the ability to weigh and assess reasons.

#### 7. *The disposition be metacognitive*

The tendency to be aware of and monitor the flow of one's own thinking; alertness to complex thinking situations; the ability to exercise control of mental processes and to be reflective.

### **What are Dispositions Made of?**

The above seven thinking dispositions include abilities, but also go beyond them. Elsewhere we have argued that thinking dispositions are comprised of three elements: abilities, sensitivities, and inclinations (Perkins, Jay and Tishman, 1992). *Abilities* refer to the capabilities and skills required to carry through on the behavior. *Sensitivities* refer to an alertness to appropriate occasions for exhibiting the behavior. *Inclinations* refer to the tendency to actually behave in a certain way.

Here is an example. Suppose you as a teacher are trying to cultivate in your students the disposition to be planful and strategic. Concerned to develop students' *ability* to think strategically, you will naturally want to directly teach some relevant thinking skills. For instance, you might teach students a procedure for setting careful goals, tactics for forecasting outcomes, a problem solving strategy, and a decision making strategy. However, knowing that abilities alone are not enough, you will also want to develop students' *sensitivity* to planful and strategic thinking occasions: you will want to find ways to help students be alert to sprawling and aimless thinking and sensitive to step-wise thinking opportunities. You might begin to cultivate such sensitivities by modeling them yourself: "As I was working on such and such a project," you might say aloud

to the class, "I realized my thinking was disorganized. So I made a plan. First, I made a list of my goals..." and so on. Also, because you recognize that sensitivity develops through frequent stimulation, you will aim to keep the idea of planfulness visually alive in the classroom. For instance, you might ask the class to brainstorm a list of times when it is especially important to use thinking strategies – times like studying for a test, preparing a report, and making a hard decision – and post the list permanently on the classroom wall. Finally, you will foster students' *inclination* towards planful and strategic thinking by explicitly valuing such behaviors in the classroom – that is, by expecting and rewarding, when appropriate, the making of plans and the use of thinking strategies.

## **Part Two: Thinking Dispositions and Models of Teaching**

We have argued that good thinking is a dispositional matter, comprised of a trio of abilities, sensitivities and inclinations. This challenges a skills-centered conception of good thinking that typically underlies the teaching of thinking, and calls for enlarged conception of what good thinking is made of. Equally importantly, it calls for an enlarged conception of what good teaching is made of.

People who teach others, whether they are professional educators or not, carry with them mental models of teaching that provide guidelines for instruction. If we want to teach students to be good thinkers, we need to ask how well a standard model of teaching, (i.e. one that is tacitly in evidence in most classrooms), serves the agenda of teaching thinking dispositions, and whether enlargements can be made on this model to make it more effective.

## **Thinking Dispositions and Teaching as Transmission**

Much of conventional instruction reflects a tacit conception of the teaching/learning process that might be termed the transmission model. The essence of this model is easily stated: the teacher's role is to prepare and transmit information to learners. The learners' role is to receive, store, and act upon this information. Consider, for example, teaching the number facts and algorithms of elementary arithmetic. The teacher, with the help of the text, presents addition and multiplication tables, explains and models the algorithms, and provides for practice and feedback. The learners commit the facts and procedures to memory and strive to become fluent and precise.

The transmission model should not be disdained. It is not a bad characterization of such situations as learning arithmetic basics, and need not suggest a mindless rote process. The teacher may well teach for understanding, not only communicating number tables but highlighting their logic and systematicity, not only modeling the algorithms but explaining their rationales. The teacher may even check that these understandings have been adequately transmitted by calling upon students to explain back or to explain to one another how and why an algorithm works.

Nonetheless, even at its best, a transmission model of teaching encounters fundamental problems when the aim is to cultivate dispositions. The point is best made by touring through the three aspects of dispositions mentioned earlier: ability, sensitivity, and inclination.

Abilities fare best under the transmission model. The conventional armamentum of transmission-style teaching serves the communication of abilities fairly well. Teachers can describe and model procedures, explain them, and provide practice and feedback.

However, inclinations challenge the transmission model in a fundamental way. Consider, for

example, the inclination to make your thinking broad and adventurous. Following the transmission model, teachers can easily communicate techniques of doing so (such as brainstorming) and the injunction to do so (you should make your thinking broad and adventurous). However, students' knowing the injunction does not constitute commitment to it, any more than knowing the Ten Commandments constitutes commitment to them. Transmission inherently only passes along the principle, not commitment to it. To accomplish the latter, teachers need not only transmit, but inspire, move, convince, engage, enthrall.

Sensitivity presents a similar challenge. Suppose that a teacher wishes to cultivate a sensitivity to occasions where students should think planfully, attending to orderly procedure, checking their work, and so on. Following the transmission model, the teacher can easily communicate conditions under which students should do so, for example while taking a test or reviewing their homework before handing it in. This may even help somewhat. However, simply because a student has stored away the rule to check work on tests does not mean the student will actually think to apply the rule. Sensitivity requires not just *having* relevant guidelines in storage but *acting* on them in relatively uncued conditions. Students taking the test have to remember for themselves to check their work, in the midst of other pressures.

## **Teaching as Enculturation**

The transmission model is at its best in conveying facts to be retrieved and procedures to be executed on cue. But the model is ill-equipped to teach for commitment to principles and conducts (inclination) and alertness to appropriate occasions for their deployment (sensitivity). If the transmission model of teaching will not do for dispositions, what will?

It helps here to recall that the purpose of a dispositional conception of thinking is to go beyond abilities and explain how good thinkers are actually disposed to think and act. People's actions, including their intellectual actions, are typically linked to the contexts they find themselves in, and learning situations are no exception. In schools as in other settings, learners tend to act in ways cued and supported by the surrounding environment (Brown, Collins, & Duguid, 1989; Costa, 1991; Perkins, 1992). With this in mind, we suggest that a conception of teaching appropriate to a dispositional model of thinking is an *enculturation* model of teaching – a model that emphasizes the full educational surround. Whereas the transmission model only asks teachers to prepare and transmit messages about what students are required to learn, the enculturation model asks teachers to create a culture of thinking in the classroom.

One reason to turn to an enculturation model is that some sort of culture in the classroom always exists: we are enculturating whether we recognize it or not, so we may as well take heed and enculture what we want. For example, inevitably, the transmission model enculturates certain sorts of inclinations and sensitivities. Consider a rather rigid version of the model where students' role is to sit quietly and receive the information they need for the test. In such an environment, an inclination to be passive with respect to knowledge tends to develop. Students do not become disposed to seek and evaluate information on their own; rather, they learn to count on the environment to automatically feed them information.

A classroom culture that cultivates good thinking dispositions presents quite a contrast. Imagine a classroom that focuses on one of the thinking dispositions identified earlier – the disposition to seek and evaluate reasons. In such a classroom, the environment encourages students to tend towards healthy skepticism. Rather than requiring them to passively take in

information, instruction will challenge students to ask questions, probe assumptions, seek justifications. A culture is created in which students learn to be sensitive to the evidential foundations of claims and responsive to superficiality and over-generalization. Along with these inclinations and sensitivities, students learn corresponding thinking abilities, such as the ability to distinguish cause and effect, to identify logical structure, and to weigh and assess reasons. A model of teaching that can usefully guide a teacher in creating a classroom culture that fosters these sorts of inclinations, sensitivities and abilities must be far-reaching and flexible. The transmission model, while helpful for the teaching of abilities, is simply too narrow to meet this larger challenge.

### **The Enculturation Model: Guidelines for Teaching**

The useful thing about models of teaching is that they suggest guidelines for organizing how and what to teach. As already noted, the transmission models guides teachers to organize their teaching in terms of preparing and transmitting messages. The enculturation model, too, suggests guidelines for organizing teaching, but it is organization of quite a different kind.

In any sustained cultural context, be it a third grade classroom, a family setting, or the culture of the workplace, it is useful to think of enculturation as occurring in three mutually reinforcing ways: through cultural exemplars, cultural interactions, and direct instruction in cultural knowledge and activities. These three aspects of enculturation – exemplars, interaction and instruction – suggest three straightforward guidelines for organizing teaching: For each thinking disposition one aims to enculturate, one wants to (1) provide exemplars of the disposition; (2) encourage and orchestrate student/student and teacher/student interactions involving the

disposition, and (3) directly teach the disposition.

Here is an example. Suppose you as a teacher are concerned to encourage students to develop a metacognitive disposition. That is, you want them to be more reflective and evaluative about their own thinking processes (one of the seven key thinking dispositions mentioned earlier). Based on the enculturation model, you decide to organize your teaching and classroom so that students are (1) exposed to exemplars of metacognition, (2) have opportunities to interact with one another around metacognitive practices and activities, and (3) receive direct instruction in metacognitive attitudes and techniques. Here are some things you might do around these three guidelines.

You begin by considering how to expose students to exemplars of metacognition. Cultural exemplars consist of artifacts and people in the environment modeling or otherwise exemplifying culturally meaningful activities and values. So you make sure to model metacognition yourself, for example by talking aloud as you are reflecting on your thinking while solving a math problem, or by revealing your mental machinations while making a careful decision. You may also bring to students' attention other exemplars of metacognition, for example in the writings of scientists reflecting on scientific thinking or artists reflecting on the creative process. Further, because the enculturation model takes the complete classroom environment into account, you will also want to consider visual exemplars that hang on the classroom walls. For example, you might place posters up that exemplify metacognition, either by illustrating a metacognitive tactic (for instance a picture of a girl with a thought-bubble above her showing her reminding herself to stand back and take stock of her thinking), or by expressing a straightforward slogan that reminds students to think about their thinking as they work.

In addition to providing metacognitive exemplars, you want to cultivate cultural interaction around metacognition. Cultural interactions involve participation in culturally meaningful activities with others, including instructors and peers. So you plan to engage students in cooperative activities in which they coach each other to articulate, monitor and evaluate their own thinking. For example, one such activity is "pair problem solving," a technique in which students help each other track and improve their thinking aloud while solving math problems (Lochhead, 1985). Again, because the enculturation model informs the complete classroom environment, you will want to consider the physical space of the classroom and find ways to make it conducive to cooperative interaction. Further, in addition to emphasizing student/student cooperative interactions, you will also make sure that metacognition is a focus of your own interactions with students. Asking students directly about their thinking is one way to do this. But interaction is not always verbal: Another important way is to honor metacognition by explicitly providing students with time for reflection. For example, instead of asking students to tell you immediately about the thinking they just did on test, you will give them minute or so of quiet time after the test to reflect on the thinking they just did. *Then* you will ask them to tell you about it.

Finally, you turn to direct instruction in metacognition. Direct instruction involves the straightforward teaching of culturally important concepts, vocabularies, activities and skills. So, for example, you might plan a series of lessons in which you directly teach subject-specific metacognitive strategies, such as metacognitive strategies for reading (Palincsar and Brown, 1984) or mathematics (Schoenfeld, 1985). Additionally or alternatively, you may decide to teach students a general metacognitive strategy for managing their thinking in any cognitively challenging situations (Tishman, Goodrich and Mirman Owen, 1990). It is here in the area of

direct instruction that the transmission model of teaching can be useful in helping you prepare and transmit information about metacognitive knowledge and procedures.

In broad terms, the contrast between teaching for transmission versus enculturation comes down to this: Teaching by transmission treats as incidental matters that teaching by enculturation treats as part and parcel of the process. For instance, if your job as a teacher is to transmit a message to use metacognitive strategies and tactics, it matters little whether you yourself try to live up to that message. But if your aim is to enculturate in students an active commitment to metacognitive thinking, then it makes all the difference in the world. When teaching by enculturation, the tacit messages of the teacher's behavior, the physical space of the classroom, the tenor of classroom interactions, the standards and expectations exhibited, all become important. As we have seen, the transmission model is useful in some instances, particularly instances of direct instruction. But as a stand-alone model to guide teaching for thinking dispositions, it is simply too narrow: The transmission model is not rejected by the enculturation model but rather is included in it.

### **Part Three: Changing Conceptions of Teaching**

The foregoing discussion may give the impression that conceptual models of teaching are fully a matter of choice: one simply selects the model that seems the most reasonable. If only that were the case! Like other mortals, educators carry with them pre-existing and well-entrenched conceptions of how things work (in this case, how teaching and learning works). These conceptions can have deep roots and are often surprisingly resistant to change. This is perfectly understandable: research shows that we begin to internalize models of subject-matter teaching

when we ourselves are young learners (Ball and McDiarmid, 1989), and conventional teacher education may have little impact on changing these models. While the teaching of thinking dispositions presents a powerful and attractive agenda for cultivating students' minds, it also calls for a change in most teachers' conception of teaching. A change towards the enculturation conception advanced here can understandably seem daunting to teachers comfortable with the straightforward guidelines of the transmission model they most likely acquired as youngsters.

If changing one's conception of teaching is so hard, how does one go about doing it? There is as yet no sure recipe, and the nub of the problem seems to be sequence: which changes first, practice or theory? For example, if you as a teacher want to make the change from a transmission conception of teaching to an enculturation model (and a change from a skills-centered conception of good thinking to a dispositions-centered one), do you first need a full theoretical understanding of dispositions and enculturation before you can make a change in classroom practice? Or, can you plunge into enculturating thinking dispositions without an understanding of theory, and cross your fingers that understanding will shortly follow?

### **Think-Do-Think or Do-Think-Do?**

The discomfort of change is eased when people anticipate and plan how to manage it. One effective plan for overcoming the theory-or-practice dilemma described above is to aim to combine theory and practice into one rhythm of effort. In practical terms, that means taking either a *think-do-think* approach to enculturating thinking dispositions in the classroom, or a *do-think-do* approach. Both of these approaches involve cycles of reflection and practice: what differs is the starting point. Here are two examples.

Teacher X takes the *think-do-think* approach. She is intrigued by the idea of enculturating thinking dispositions, and sets herself the task of envisioning how it might work in her classroom. She considers her own teaching techniques and reflects on her current classroom culture. She asks herself whether the exemplars she provides foster such thinking dispositions as the disposition to be metacognitive, and to think broadly and adventurously. She also considers the interactions in her classroom – how well do *they* foster thinking dispositions? After some reflection, teacher X takes action. Starting modestly, she focuses simply on enculturating one disposition, the disposition to think broadly and adventurously. She organizes an interactive activity in which students work in pairs, coaching each other to push their thinking beyond the ordinary and to think broadly about unusual ways to present a book report. She also provides an exemplar of broad thinking by showing students how she herself uses brainstorming tactics to extend her thinking in new directions. Afterwards, she completes the *think-do-think* cycle by reviewing the experience and reflecting on what she has learned – about thinking dispositions, about the existing culture of her classroom, and about her own conception of teaching and learning.

Teacher Y approaches things differently. Unlike teacher X, he likes to dive in first and look later, taking the *do-think-do* approach to educational innovation. Upon hearing of the notion of thinking dispositions, teacher Y immediately decides to try something new. On the fly, he invents a couple of activities he hopes will encourage students to develop the disposition to be broad and adventurous. In one, he asks students to plan three unusual travel routes from Los Angeles to Buenos Aires. In another, he asks students to think broadly about alternative ways to investigate weather patterns. After this plunge into practice, he stands back and reflects on the experience.

Running through the enculturation model in his head, he sees that he might have provided better exemplars for students. For example, they didn't know quite how to prompt themselves to look beyond the obvious, and he could have modelled it himself. Also, he might have done more around direct instruction by teaching students some creative thinking tactics to help them stretch their thinking further. Fortified by these reflections, teacher Y completes the *do-think-do* cycle by planning what he will do in tomorrow's lessons to continue to enculturate the disposition to be broad and adventurous.

*Think-do-think* or *do-think-do*? Both teacher X and teacher Y have the right idea. The starting point for innovation is a matter of individual preference. What matters in either case is that an steady rhythm of reflection and practice is established.

## Conclusion

While acknowledging the importance of thinking abilities, we have argued that a skills-centered conception of good thinking is not sufficient to account for people's on-going intellectual tendencies to explore, to probe, to strategize, to be reflective, to be adventurous, and to be reasonable – in short, to think creatively and critically. Tendencies such as these are dispositional, and we propose that good thinking is indeed a dispositional matter, involving a triad of appropriate abilities, sensitivities and inclinations. This view has a significant message for the teaching of thinking: In broad stroke, it says that instruction must attend to all three aspects of the dispositional triad in order to be effective.

The challenge of teaching thinking dispositions requires an expanded conception of teaching

that includes but also goes beyond the standard transmission model. Such an expanded model, we suggest, can be characterized as *enculturation*. The purpose of an enculturation model of teaching is to provide guidelines for creating a culture of thinking in the classroom that promotes, from all quarters, the development of good thinking dispositions. The enculturation model focuses on three key aspects of culture-building: exemplars, which concern the models of thinking that are present in the learning environment; interaction, which concerns the tenor and content of relations among members of the classroom; and direct instruction, which concerns the direct teaching of culturally important concepts, activities and skills.

In sum, we advocate an approach to the teaching of thinking that emphasizes the importance of culture in the development of good thinking dispositions. Such an enculturative approach, we believe, can be a powerful way to help learners become abidingly disposed towards good thinking practices.

## References

Ball, D. L. & McDiarmid, G. W. (1989). The subject matter preparation of teachers. (Issue Paper 89-4). East Lansing: Michigan State University, The National Center for research on Teacher Education.

Baron, J. B. (1987). Being disposed to think: A typology of attitudes and dispositions related to acquiring and using thinking skills. Boston MA: University of Massachusetts, Critical and Creating Thinking Program.

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. Educational Researcher, 18 (1), 32-42.

Costa, A. L. (1991). The school as a home for the mind. In Developing minds: A resource for teaching thinking, revised edition, Vol. 1., A. L. Costa, (Ed.). Alexandria: ASCD

Ennis, R. H. (1987). A taxonomy of critical thinking dispositions and abilities. In J. B. Baron and R. S. Sternberg (Eds.), Teaching thinking skills: Theory and practice. NY: W. H. Freeman.

Lochhead, J. (1985). Teaching analytic reasoning skills through pair problem solving. In S. F. Chipman, J. W. Segal, & R. Glaser (eds.), Thinking and learning skills, Volume 2: Research and open questions (pp. 109-131). Hillsdale, NJ: Erlbaum.

Palincsar A. S. & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. Cognition and Instruction, 1, 117-175.

Perkins, D. N. (1992). Smart schools: From training memories to educating minds. New York: Free Press.

Perkins, D., Jay, E., & Tishman, S. (in press). Beyond abilities: A dispositional theory of thinking. The Merrill-Palmer Quarterly.

Perkins, D. N., Farady, M. & Bushey, B. (1991). Everyday reasoning and the roots of intelligence. In J. F. Voss, D. N. Perkins, J. Segal (eds.), Informal reasoning and Education, pp. 83-106.

Schoenfeld, A. H. (1985). Mathematical Problem Solving. New York: Academic Press.

Tishman, S., Goodrich, H., & Mirman Owen, J. (1990). Fourthought. Teaching Thinking and Problem Solving, 12, 4, 1-11.